

CLAIMS

1. Method for the manufacture of composite sheets,  
in which:
- 5 • a bundle of parallel threads is driven in a given  
direction,
- a lap of thread or threads oriented transversely  
relative to this given direction is combined with  
this bundle, the bundle of threads and/or the lap of  
10 thread or threads comprising at least one organic  
material and at least one reinforcing material, and  
the combination comprising at least 10% by weight of  
organic material,
- 15 • the combination is heated, being displaced in the  
given direction, and is fixed by the action of heat  
and/or of pressure, then by cooling, so as to form a  
composite band,
- the band is collected in the form of one or more  
composite sheets.
- 20 2. Method according to Claim 1, characterized in  
that the reinforcing material is provided solely in the  
form of threads, separate from one another and  
unconnected.
3. Method according to one of Claims 1 and 2,  
25 characterized in that the combination comprises at  
least 50% by weight of co-blended threads.
4. Method according to Claim 3, characterized in  
that the co-blended threads consist mainly of glass  
filaments and of filaments of thermoplastic organic  
30 material which are intimately mixed.
5. Method according to one of Claims 1 to 4,  
characterized in that the lap of threads is a lap of  
continuous thread or continuous threads and is combined  
with the bundle of threads, using a rapier loom.
- 35 6. Method according to one of Claims 1 to 4,  
characterized in that the lap of thread or threads is a  
lap of continuous thread or continuous threads and is  
combined with the bundle of threads, using a weft  
insertion carriage, the threads of the bundle and of

the lap being, if appropriate, sewn to one another by means of binding threads.

7. Method according to one of Claims 1 to 4, characterized in that the lap of thread or threads is a lap of continuous thread or continuous threads, and in that combination takes place by the lap of threads being incorporated transversely into the bundle of parallel threads with the aid of a netting loom with weft insertion by rotary arms.

8. Method according to one of Claims 1 to 4, characterized in that the lap of thread or threads is a lap of cut thread or cut threads, and in that combination takes place by the threads being cut above the bundle of parallel threads, the threads falling, preferably beforehand, onto one or more deflectors.

9. Method according to one of Claims 1 to 4, characterized in that combination takes place by one or more threads being projected transversely in the form of a mat onto the bundle of parallel threads, the lap of threads in the form of the mat being, if appropriate, covered by a second bundle of parallel threads which is displaced in the same direction as the first bundle of parallel threads.

10. Method according to one of Claims 1 to 9, characterized in that:

- a first bundle of parallel threads is driven in a given direction,
- a lap of threads oriented transversely relative to this given direction is combined with this first bundle,
- at least one second bundle of parallel threads is combined with the bundle and with the lap in the given direction, the first bundle of threads and/or the lap of threads and/or the second bundle of threads comprising at least two materials having different melting points,
- the combination is heated, being displaced in the given direction, and/or is fixed by the action of

heat and/or of pressure, then by cooling, so as to form a composite band,

- the band is collected in the form of one or more composite sheets.

- 5 11. Method according to one of Claims 1 to 10, characterized in that other elements imparting particular properties to the composite sheets obtained are applied to the surface of the combination and/or introduced into the combination.
- 10 12. Apparatus for the manufacture of at least one composite sheet, this apparatus comprising:
- a) one or more devices (or members) for feeding at least one bundle of parallel threads,
  - b) one or more devices (or members) for feeding at  
15 least one lap of threads,
  - c) one or more devices for orienting the threads of the lap transversely to the direction of the parallel threads of the bundle,
  - d) at least one device (or member) for heating the  
20 combination of the bundle and of the lap,
  - e) and at least one device for cooling the combination.
13. Apparatus according to Claim 12, characterized in that it comprises, furthermore, at least one  
25 compression device and/or at least one cutting device and/or at least one device for collecting the composite sheets.
14. Apparatus according to one of Claims 12 and 13, characterized in that the device for orienting the  
30 threads of the lap is a rapier loom, a carriage loom, a netting loom with weft insertion by rotary arms, or a deflector.
15. Apparatus according to one of Claims 12 to 14, characterized in that it comprises, furthermore, an  
35 accumulator and/or a move-away bar drawing the product to the rear and/or moving the product away from the heating zones and/or for compression in the event of a stoppage of an upstream device.

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16. Composite sheet based on at least one thermoplastic organic material and on at least reinforcing threads, which is obtained by means of the method according to one of Claims 1 to 11 and which is  
5 characterized in that the shrinkage is below 6%.

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